

PHILIP MORRIS U.S.A.
INTEROFFICE CORRESPONDENCE
Richmond, Virginia

To: Distribution

Date: July 10, 2003

From: Barbara L. Ward *blw*

Subject: Cigarette Information Highlights - Quest

Quest 1, Quest 2, and Quest 3 King Size Box

Liggett Vector launched its new product Quest in January 2003. Quest initially was introduced in New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, and Michigan. The three packings of Quest are advertised as "Step to Nicotine Free." The descriptors on Quest 1, 2, and 3 packs are:

- Quest 1 is "Low Nicotine" (0.6 mg of nicotine per cigarette)
- Quest 2 is "Extra Low Nicotine" (0.3 mg of nicotine per cigarette)
- Quest 3 is "Nicotine Free" (only traces levels of nicotine – no more than 0.05 mg of nicotine per cigarette)

The tar level on each of the three Quest products is approximately 10 mg per cigarette. The cigarettes are made using a patent pending process of genetically altered nicotine-free tobacco. The filter assembly consist of an outer cellulose acetate filter, a carbon loaded center section, and a pleated paper inner filter. The carbon consists of uniform pellet-type charcoal granules. The brand name 'Quest' is printed in gold on the white tipping paper of the cigarette. One, two or three gold bands are printed below the name on the tipping which is indicative of the brand - Quest 1, 2 or 3, respectively.

All three versions of the Quest product are packaged in blue designed boxes with the featured number in bold red blocks indicating the product as Quest 1, 2, or 3. The pack onsert details information about each version. Images of the packs, cigarettes and onserts are attached.

PMUSA RD&E tested the three versions of the Quest product in February 2003. Paper permeability was high on all three Quest brands compared to conventional products. Lower tobacco oven volatiles were observed which may be a factor attributing to high loose ends.

Complete machine-generated FTC smoke method yields and physical parameter data are found in the attached tables.

PM3006374502

Distribution:

H. Alonso - PMUSA (OC)
R. Anise - PMUSA (NYO)
M. Arwady - PMUSA (NYO)
D. Beran (PMUSA (NYO)
N. Brennan Lund - PMUSA (NYO)
H. Burnley - PMUSA (OC)
M. Chemla - PMI (Lausanne)
N. Conrad - PMUSA (NYO)
M. E. Counts - PMUSA (RD&E B-2)
G. Cummings - PMUSA (OC)
J. Dickerson - PMUSA (OC)
R. Fenner - PMUSA (RD&E A-2)
T. Garguilo - PMUSA (NYO)
C. Hatcher - PMUSA (OC)
C. Hayes - PMUSA (OC)
T. Helm - PMUSA (OC)
D. Keane - ACSI (NYO)
B. Keen - PMUSA (OC)
M. King - PMUSA (Bedminster, NJ)
S. LeVan - PMUSA (NYO)
J. Lewis - PMUSA (OC)
C. Lilly - PMUSA (OC)
A. Lopez - PMI (Ryebrook)

D. Milby - PMUSA (OC)
M. Mobrem - PMUSA (OC)
K. Monahan - PMUSA (NYO)
L. Nardell - PMUSA (OC)
B. Neidle - PMUSA (NYO)
J. Nelson - PMUSA (OC)
K. Newman - PMUSA (OC)
U. Nyffeler - PMUSA (OC)
L. Pulsifer - PMUSA (OC)
S. Rivera - PMI (Lausanne)
J. Scully - PMI (Lausanne)
J. Smith PMUSA (OC)
R. Solana - PMUSA (OC)
J. Spruill - PMUSA (OC)
N. Suter - PMUSA (NYO)
M. Szymanczyk - PMUSA (NYO)
S. Teitelbaum - PMUSA (NYO)
M. Waldman - PMUSA (NYO)
N. Winston - PMUSA (OC)

Categories/Tests	Quest 1 February 2003	Quest 2 February 2003	Quest 3 February 2003
Smoke	Average	Average	Average
FTC Butt Length, mm	33.0	33.0	33.0
*FTC Tar (Filtrona), mg/cigt. ¹	10.2	9.0	9.3
*FTC TPM (Filtrona), mg/cigt.	12.3	10.5	10.4
*FTC Nic. (Filtrona) mg/cigt.	0.60	0.31	0.04
*FTC Water (Filtrona) mg/cigt.	1.50	1.23	1.03
*FTC Puffs/cigt.(Filtrona)	6.4	6.1	6.4
*FTC CO (Filtrona) mg/cigt.	11.5	11.9	11.9
*CO, mg/cigt.	11.1	11.8	11.6
NO, mg/cigt.	0.191	0.213	0.235
HCN, mg/cigt.	0.089	0.097	0.087
Acetaldehyde, mg/cigt.	0.442	0.459	0.394
Tar/Puff, mg ¹	1.6	1.5	1.5
Cigarette			
*Total RTD, mm of H ₂ O	104	107	116
Static Burn Time, min.	6.5	6.2	6.5
*Length, mm	83.0	83.1	82.9
*Circumference, mm	24.72	24.58	24.59
Loose Ends, g/50 cigt.	2.91	3.05	1.36
Paper			
Citrate, %	1.3	1.1	1.2
*Permeability, CU	159	158	133
Fiber Content	Wood pulp/Flax/Esparto	Wood pulp/Flax/Esparto	Wood pulp/Flax/Esparto
Filter			
Type (Inner)	Paper	Paper	Paper
Type (Middle)	Carbon	Carbon	Carbon
Type (Outer)	Cellulose Acetate	Cellulose Acetate	Cellulose Acetate
*Length, mm	24.8	25.0	24.9
Length, mm (Inner)	7.9	8.2	8.2
Length, mm (Outer)	12.4	12.1	12.1
Weight, g (Inner)	0.06	0.07	0.06
Weight, g (Outer)	0.06	0.06	0.06
Fiber Denier/Shape (Outer)	3.6Y	3.5Y	3.8Y
Tipping Paper Length, mm	30.0	30.0	30.0
Tipping Paper Color	White	White	White
*Ventilation, %	None	None	None
Carbon, mg/plug	75	66	74
Filler			
Total Alkaloids, % (DWB) ¹	1.56	0.86	<0.30
Total Red. Sugars, % (DWB) ¹	8.6	7.1	2.6
Reconstituted Tob., %	11	16	0
Expanded Stems, %	0	0	0
Expanded Tob., %	0	0	0
BBO, %	0	0	0
Lamina, % ¹	89	84	100
Cuts/Inch	29	28	29
*Tobacco Weight, g (Unequil.)	0.617	0.636	0.620
Rod Density, g/cc ¹	0.218	0.228	0.222
Rod Length, mm ¹	58.2	58.0	58.0
OV After Grinding, %	9.2	8.8	9.2
Humectant/Plasticizer			
Glycerin in Smoke, mg/cigt.	0.66	0.64	0.60
TPM, mg/cigt.	12.0	10.1	10.3
Puffs/Cigt.	6.4	6.0	6.1
Triacetin in Filter (Outer), %	9.6	9.4	8.6
Glycerin in Filler, %	1.84	1.84	1.42
PG in Filler, %	0.13	0.12	None
Firmness (Pack)			
Firmness, mm	2.71	2.52	2.14
*Tobacco Weight, g	- 0.621	0.634	0.615
*Oven Volatiles, %	10.19	9.86	9.59
Banded Paper Performance			
PAPER 10, % (Total Burn)	100.0	100.0	100.0

* Indicates test within scope of accreditation to ISO/IEC 17025 - 1999

¹ Calculated values